

REMOVE ENOUGH NITROGEN?

New understanding of the manner with which our on-site wastewater systems work, such as how pollutants and nutrients in our wastewater act within the subsurface, is detailed in the Massachusetts Estuaries Program (MEP) Reports. Title 5 systems, as well as on-site Innovative/Alternative (I/A) Systems remove *some* nitrogen, but not enough to protect our coastal resources. And, while these I/A systems have been shown to be able to reduce nitrogen before it enters the ground better than Title 5 systems, they cannot solve the nitrogen problem alone, especially in areas of dense development, such as Madaket.



NANTUCKET HEALTH DEPARTMENT

Roberto Santamaria
Health Director



NANTUCKET BOARD OF HEALTH

Malcom W. MacNab, MD, PhD
James A. Cooper
Rick Atherton
Helene M. Weld, RN
Stephen Visco

3 East Chestnut Street (NRTA Building)

Phone: 508.228.7200 X 7014 & 7020

Fax: 508.325.6117

E-mail: health@nantucket-ma.gov

TOWN OF NANTUCKET

HEALTH DEPARTMENT

SEPTIC SYSTEMS : HOW THEY OPERATE & WHAT THAT MEANS FOR NANTUCKET'S WATER RESOURCES



TEL: 508.228.7200 X 7014 & 7020

WHAT ON-SITE WASTEWATER DISPOSAL SYSTEMS CAN AND CANNOT DO

If your property lies outside of either the Surfside or Siasconset Wastewater Treatment Facilities, and you do not pay a sewer user fee, then you depend on an onsite wastewater disposal system (septic system) to dispose of all water (sinks, toilets, drains, showers, washing machines) from your home. These on-site wastewater disposal systems are governed by the Massachusetts Code of Regulations 310 CMR 15.00 (Title 5), as well as more stringent local regulations under the jurisdiction of the Nantucket Health Department.

The Massachusetts Estuaries Project determined that these on-site wastewater systems are contributing excessive amounts of nitrogen to our harbors, embayments, estuaries and salt ponds.

Nitrogen is a nutrient that comes from human waste, fertilizer, storm water runoff and the atmosphere. This nitrogen consumes oxygen within our water resources and fosters algae blooms, which kill aquatic habitats and produce an overall degradation of our water quality.

With our on-site wastewater systems contributing to this pollution, what type of repair or replacement can be effected within certain designated water quality protection areas to protect our water resources?

WHAT CAN WE DO TO STOP THIS POLLUTION?

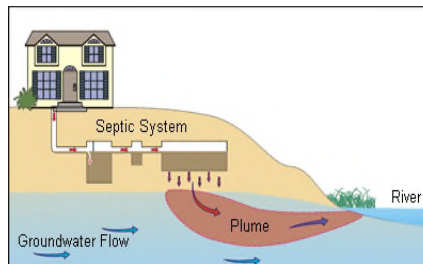
Massachusetts Estuaries Reports (MEP)

MEP Reports are completed for Nantucket Harbor, Polpis Harbor, Madaket Harbor, Long Pond, Sesachacha Pond and Hummock Pond. In summary, the results show that cultural eutrophication caused by excess nutrient loading from human sources is contributing excessive amounts of nitrogen to these water resources, which require solutions to reverse the current degradation before we lose our precious water resources and aquatic habitat. Nitrogen can also effect our drinking water supply and the aesthetic beauty of Nantucket's recreational waters.

The MEP also identifies our on-site systems as a dominant controllable source of nitrogen for these waters. Eventual long-term impacts of this could also impact tourism, property values, and our fish and shellfish industries.

HOW DOES AN ON-SITE WASTEWATER SYSTEM WORK?

On-site systems utilize soils as their source of 'treatment' for wastewater that is generated by our properties. Wastewater includes water from toilets, sinks, drains, showers, washing machines and dishwashers. The picture shows a typical residential home and how an on-site wastewater system works. The wastewater is carried via pumps and pipes to a septic tank that separates out the solids from the liquids. The solids sink to the bottom and are pumped periodically. The liquids are then percolated through the soils, which 'cleanse' the wastewater before it reaches groundwater and is carried off through the groundwater system to other water resources. While the soils are capable of removing some contaminants, a typical on-site system



removes a very limited amount of nitrogen. Degradation of our water resources is occurring due to a

number of reasons, with on-site systems being a major locally controllable source.

On-site systems do *NOT* completely control the release of nitrogen. When Massachusetts implemented Title 5 of the State Environmental Code in 1978, it included basic rules for the regulation of on-site wastewater disposal. At that time, the Code was designed to control human pathogens, such as bacteria. There was no foresight in the 1970s to control nitrogen at the levels we are now experiencing from on-site systems.

So our on-site systems-whether Title 5 or Innovative/Alternative (I/A) - do *NOT* control nitrogen at the levels that Nantucket needs to control in order to maintain water quality levels required by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP has issued Total Maximum Daily Loads (TMDLs) in multiple water resources areas of Nantucket, which the Town must meet.

The TMDL mandates that Nantucket reduce the nitrogen loading in our water resources to very specific levels deemed allowable in order to maintain good water quality.

Nantucket must now develop solutions that will be able to meet the parameters of these TMDLs and in many cases it will involve reducing nitrogen loads from on-site wastewater systems.

This means that in many areas of the Island, on-site wastewater systems will need to be removed and another source of wastewater service developed as a long-term solution to meet not only the needs of the property owner *AND* meet the mandates of the TMDL, but to preserve and protect Nantucket's water resources for decades to come!

IT IS UP TO US TO PRESERVE AND PROTECT NANTUCKET'S WATER RESOURCES!